

Claims

1. An endoscopic method for treating cartilage or bone defects in an animal, said method comprising the steps of:

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i) identifying the position of the defect,

ii) applying cells selected from the group consisting of chondrocytes, chondroblasts, osteocytes and osteoblasts and combinations thereof into the cartilage or bone defect.

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2. A method according to claim 1 for arthroscopic or endoscopic implantation of homologous or autologous cells into a defect of an animal body, the method comprising a step of

i) arthroscopic or endoscopic application of a fluid to a cavity or surface containing the defect

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and the steps of

ii) application of the cells to the defect substantially simultaneously with a support material, the application being performed at the defect covered by the fluid,

iii) mixing of the cells and the supporting material,

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iv) solidification of the supporting material so that the defect is covered by a mixture of cells and support material without any significant amount of fluid, and

v) optionally, removal of the fluid from the cavity or surface by drainage or suction.

3. A method according to claim 2, wherein step i) is prior to steps ii)-v).

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4. A method according to claim 2, wherein the application of the fluid in step i) is substantially simultaneously to the application of the cells in step ii) and the supporting medium in step iii).

30 5. A method according to claim 4, wherein the fluid is a gas.

6. A method according to any of the preceding claims, wherein the animal is a mammal such as a human.

35 7. A method according to any of the preceding claims, wherein the defect is a joint or bone defect.

8. A method according to claim 7, wherein the defect is a cartilage defect.
9. A method according to the any of the preceding claims, wherein the cells are of suitable origine for targeting a suitable tissue, where the visualization is done by an endoscope.
10. A method according to any of the preceding claims, wherein the cells are chondrocytes, osteocytes or osteoblasts.
11. A method according to claim 10, wherein the cells are chondrocytes.
12. A method according to any of the preceding claims, wherein the cells are homologous and/or autologous chondrocytes.
13. A method according to any of claims 2, 3, 5-12, wherein the fluid in step i) is a liquid.
14. A method according to claim 13, wherein the liquid is a physiologically acceptable aqueous medium selected from the group consisting of sodium chloride solution, Ringer's solution, a cell culture medium, a cell friendly liquid and the like .
- 20 15. A method according to any claims 2-14, wherein the support material in step ii) is selected from the group consisting of soluble collagens, fibrinogens and aprotinin.
16. A method according to claim 15, wherein the support material is applied in the form of an aqueous composition.
- 25 17. A method according to claim 16, wherein the aqueous composition further comprises one or more adhesion-promoting agents and/or one ore more physiologically acceptable ions such as calcium or magnesium ions.
- 30 18. A method according to any of the preceding claims, wherein the cells in step ii) are applied in the form of a cell suspension.
19. A method according to claim 18, wherein the cells are suspended in a suitable medium such as, e.g., a suitable growth medium optionally comprising one or more growth factors.
- 35 20. A method according to claim 18 or 19, wherein the cell suspension further comprises

one or more coagulating components that initiates the solidification of the support material upon contact between the support material and the coagulating component.

21. A method according to any of claims 18-20, wherein the cell suspension further 5 comprises one or more adhesion-promoting agents and/or one or more physiologically acceptable ions such as calcium or magnesium ions.
22. A method according to claim 20 or 21, wherein the coagulating component is thrombin or a thrombin-like component.
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23. A method according to any of claims 2-22, wherein the solidification of the support material is a result of an interaction between the support material and thrombin or a thrombin-like component and the solidification envelopes the cells in the solidified material.
- 15 24. A method according to claim 18 or 19, wherein the cell suspension comprises the support material and the method further comprising a step of applying a solution containing a coagulating agent.
- 20 25. A method according to any of claims 2-23, wherein the mixing of the cells with the support material in step iii) is performed by application the support material and/or the cells under a positive pressure.
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26. A method according to claim 24, wherein the suspension comprising the cells and the support material is mixed with the coagulating agent by application of the solution containing the coagulating agent under a positive pressure.
27. A kit for use in a method defined in any of the preceding claims, the kit comprises two separate containers, the first container comprising the cells and the second container comprising the support material.
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28. A method according to claim 27, wherein the cells in the first container are in the form of a cell suspension.
29. A kit according to claim 28, wherein the cells are suspended in a suitable medium
35 such as, e.g., a suitable growth medium optionally comprising one or more growth factors.
30. A kit according to claim 28 or 29, wherein the cell suspension further comprises one or

more coagulating components that initiates the solidification of the support material upon contact between the support material and the coagulating component.

31. A kit according to any of claims 28-30, wherein the cell suspension further comprises
5 one or more adhesion-promoting agents and/or one or more physiologically acceptable ions such as calcium or magnesium ions.

32. A kit according to claim 30 or 31, wherein the coagulating component is thrombin or a thrombin-like component.

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33. A kit according to any of claims 27-32 further comprising a third container comprising a coagulating component.

34. A kit for use in a method defined in any of the preceding claims, the kit comprises two
15 separate containers, the first container comprising the cells and the second container comprising a coagulating agent.

35. A kit according to claim 34, wherein the first container comprises the support material.

20 36. A kit according to claim 34 or 35 further comprising a third container comprising the support material.

37. A kit according to any of claims 27-36, wherein the kit is in the form of a syringe containing two separate chambers, the first chamber containing the cells and the second
25 chamber containing the support material or a coagulating agent.

38. A kit according to claim 37, wherein the syringe is a Twin syringe or the like.

39. A kit according to any of claims 27-38 further comprising instructions for use of the kit.
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40. A method according to any of claims 1-26 further comprising application of hydroxyapatite e.g. in the form of a hydroxyapatite granulate.

41. Use of hydroxyapatite as culturing medium for cells such as osteoblasts/osteocytes.
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42. Use of collagen solutions as culturing medium for the cells to be arthroscopically transplanted.

43. Use of collagen solutions as culturing medium for the cells to be endoscopically transplanted.